

GUIDELINES FOR GUARDRAIL USE

Guardrail use is based on a subjective evaluation of the relative hazard of the guardrail versus the hazard of the unprotected obstacle. A guardrail in itself is a hazard; therefore the guardrail should only be used if the obstacle is judged to be more hazardous to the motorist than the guardrail.

Although no two conditions are the same, these guidelines are established to furnish some objective criteria which will assist in determining under what circumstances guardrails will be installed in connection with any future construction work.

Roadway situations that may warrant installation of guardrails can be placed basically in the following categories:

1. EMBANKMENT

Height and slope of an embankment are the basic factors in determining whether a guardrail will be used. Generally guardrail will be installed with fill heights of 10 feet or more for 2:1 slopes and 15 feet or more for 3:1 slopes extending 100 feet or more in length. Where the fill height is less but there are obstacles on the slope, guardrails should also be considered. (see attached drawing)

2. ROADSIDE OBSTACLES

The removal of roadside obstacles should be the first alternative considered. If it is not feasible to remove or eliminate a roadside obstacle, then a guardrail may be warranted. The nature of the obstacle and its distance from the edge of the pavement (clear zone) are the basic factors in determining if a guardrail is warranted. A clear zone is defined as that area adjacent to the roadway, starting at the edge of pavement, available for safe use by errant vehicles. Obstacles such as boulders, bodies of water more than 2-feet in depth, bridge supports, bridge ends, piers, abutments, retaining walls and culverts generally should be removed, relocated or shielded by a guardrail if they are within the desired clear zone widths (except obstacles such as power poles, light poles, signal poles, sign posts, fire hydrants, trees).

3. DEAD END STREET

Guardrail generally should be placed at the end of each dead end street.

For material and installation of guardrail refer to Standard Plan No. GR-1.

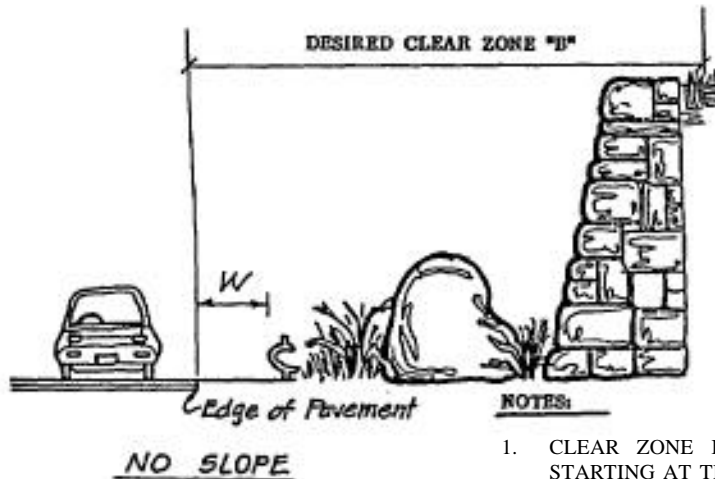
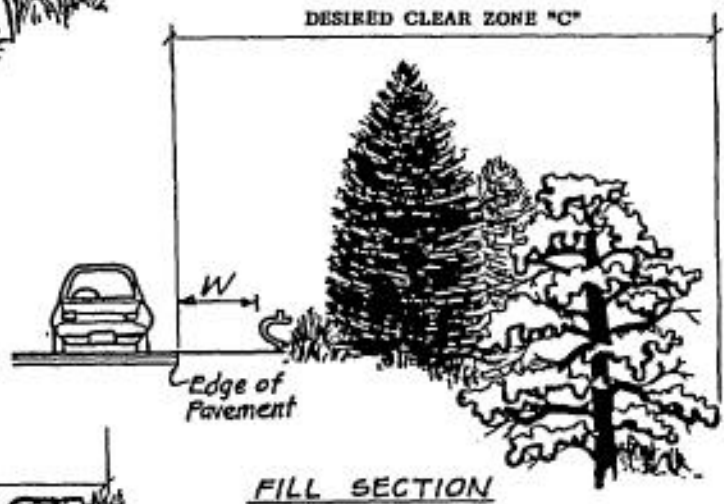
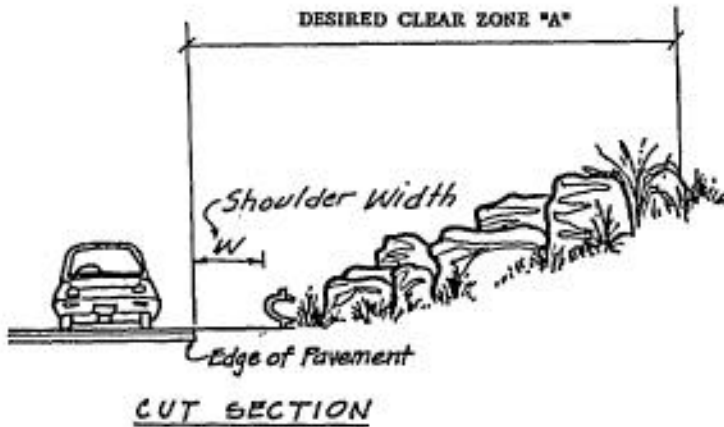
Due to the complex nature of the subject matter, only general suggestions and recommendation can be made. For this reason, it should be emphasized that the application of these guidelines must be based on evaluation of the facts and sound engineering judgment.

Perfected and adopted this 1st day of August, 1989.

George L. Satterlee, P.E.
Director of Public Works

Document No. 890524

ROADSIDE OBSTACLES



DESIRED CLEAR ZONE		
Speed (MPH)	A & B (Ft.)	C (Ft.)
25	10	15
35	15	20
45	20	25
55	25	30

1. CLEAR ZONE IS DEFINED AS THE ROADSIDE BORDER AREA, STARTING AT THE EDGE OF THE TRAVELED WAY, AVAILABLE FOR SAFE USE BY ERRANT VEHICLES.
2. IF IT IS NOT FEASIBLE OR POSSIBLE TO REMOVE A HAZARD FROM THE CLEAR ZONE THEN A GUARDRAIL MAY BE WARRANTED.
3. THE CLEAR ZONE WIDTHS NEED NOT BE INCREASED FOR HORIZONTAL CURVATURE
4. USE OF GUARDRAIL IS NOT WARRANTED FOR OBSTACLES SUCH AS POWER POLES, LIGHT POLES, SIGNAL POLES, SIGN POSTS, FIRE HYDRANTS AND TREES.

EMBANKMENTS

